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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Bernhard Gleich

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS
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EXAMINER

MEHTA, PARIKHA SOLANKI

ART UNIT

PAPER NUMBER

3737

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/552,820	Applicant(s) GLEICH, BERNHARD	
	Examiner PARIKHA S. MEHTA	Art Unit 3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-18, 20-22 and 25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-18, 20-22 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 15 April 2010 has been entered.

Claim Objections

2. Claims 2-18, 20, 21 and 25 are objected to because of the following informalities:

In step d of claim 2, "tine" should be replaced with --time--.

Claim 15 recites dependence from claim 13, although it appears from the limitations set forth therein that the claim should actually recite dependence from claim 14.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claim 22 is rejected under 35 U.S.C. 102(a) as being anticipated by Applicant's admitted prior art. Applicant admits that the system used to execute the presently claimed method, i.e. a system comprising means for executing all steps as set forth in claim 22, was known in the art prior to invention (Specification p. 4 lines 26-27).

Claim Rejections - 35 USC § 103

Art Unit: 3737

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2-9, 11-13, 16-18, 22 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tournier et al (US PG Pubs. No. 2002/0168321), hereinafter Tournier ('321) in view of Kreuwel et al (US Patent No. 6,764,859), hereinafter Kreuwel ('859).

Regarding claims 2, 4, 5, 7, 22 and 25, Tournier ('321) teaches an MR system and diagnostic method including means and steps for generating an imaging magnetic field over an examination area such that the area comprises one sub-area subjected to a lower magnetic field strength and a second sub-area subjected to a higher magnetic field strength, acquiring signals that depend on the magnetization in the examination area, and evaluating the signals to determine the spatial distribution of magnetic particles in the examination area (§ 10, 26, 35).

Tournier ('321) does not teach changing the spatial location of the sub-areas, nor does Tournier ('321) teach that the magnetic particles are exposed to a varying magnetic field. In the same field of endeavor, Kreuwel ('859) teaches subsection of magnetic particles to a varying magnetic field, wherein the field is reversed (i.e., oscillated, such that the relative position of the examination area changes relative to the magnetic field) within a sub-area and thus inherently experiences a zero crossing therein, wherein the field is inherently applied in three dimensions and locally restricted, in order to prevent agglomeration of magnetic and superparamagnetic particles (Abstract, col. 2 lines 21-32, col. 2 line 61-col. 3 line 4, col. 3 lines 23-30, claims 1-4). It would have been obvious to one of ordinary skill in the art at the time of invention to have modified Tournier ('321) to include the spatial location changing and varying magnetic field application steps and means of Kreuwel ('859) and thereby achieve the claimed invention, in order to prevent agglomeration of the magnetic particles according to the teachings of Kreuwel ('859).

Regarding claim 3, Tournier ('321) teaches application of a gradient field (§ 2).

Regarding claim 6, Tournier ('321) teaches the particles as having an average size or expansion of at least 30 nm (§ 35).

Regarding claims 8, 9 and 12, neither Tournier ('321) nor Kreuwel ('859) expressly teach specific values for the varying field strength, power or frequency. However, it would have been obvious to one of ordinary skill in the art at the time of invention to have used a magnetic field of the claimed

Art Unit: 3737

parameter values, as it has previously been held that, where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges is obvious and unpatentable (*In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)).

Regarding claim 11, Tournier ('321) teaches that the particles comprise a magnetic core and nonmagnetic coating (§ 19 and 49).

Regarding claim 13, all magnetic fields, including the varying field taught by Kreuwel ('859), inherently comprise at least one pulse that decays to zero.

Regarding claim 16, neither Tournier ('321) nor Kreuwel ('859) expressly teach deagglomeration (i.e. application of the varying magnetic field to the particles) prior to administering the magnetic particles to the examination area. However, a skilled artisan would have found it to be an obvious matter of common sense to try to deagglomerate the particles prior to administration, in order to prevent having to separate them after they are dispersed within the subject to be imaged.

Regarding claim 17, neither Tournier ('321) nor Kreuwel ('859) teach application of the varying field and, thus, the deagglomeration of the magnetic particles, after the particles are administered to the examination area, or that the varying field is only applied to a part of the examination area. However, one of ordinary skill in the art would have considered it nothing more than an obvious matter of common sense to apply the varying field after administration in order to maximize the effects of deagglomeration during imaging, and to only expose the area to be imaged (i.e., a part of the examination area) to such field, as exposing more of the area would not be useful (*KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385).

Regarding claim 18, the obviousness of the claimed frequency range has previously been discussed for claims 8, 9 and 12. Furthermore, a skilled artisan would have considered it nothing more than an obvious matter of common sense to alternate the imaging and varying fields of Tournier ('321) and Kreuwel ('859), in order to prevent the signal of the varying field from interfering the imaging field (*KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385).

7. Claims 10, 14, 15 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tournier ('321) and Kreuwel ('859) as applied to claim 2 above, and further in view of Ivkov (US PG Pubs. No. 2006/0142749), hereinafter Ivkov ('749), of record.

Tournier ('321) and Kreuwel ('859) do not teach the particles to be monodomain particles, nor do they teach that the varying magnetic field is chosen in view of the viscosity of the liquid medium in which the particles are dispersed. In the same problem solving area, Ivkov ('749) teaches a method of

Art Unit: 3737

administering to a patient a solution of magnetic particles wherein monodomain magnetic contrast particles are dispersed in blood, the monodomain particles being configured to be reverse magnetized by Neel rotation, and wherein the frequency of the varying magnetic field is chosen in view of the viscosity of blood (§ 15, 16, 22, 27, 63-64). It would have been obvious to one of ordinary skill in the art at the time of invention to have modified Tournier ('321) and Kreuwel ('859) to include the steps of Ivkov ('749) and thereby achieve the claimed invention, as such a modification requires nothing more than the mere combination of known prior art steps to yield predictable results, which has previously been held as obvious and unpatentable (*KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385).

8. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tournier ('321) and Kreuwel ('859) as applied to claim 2 above, and further in view of Rand (US PG Pubs. No. 2005/0066961), hereinafter Rand ('961), of record.

Neither Tournier ('321) nor Kreuwel ('859) teach the magnetic particle to be a hard or soft multi-domain particle. In the same field of endeavor, Rand ('961) teaches an MR contrast imaging method wherein the magnetic particle is a hard or soft magnetic multi-domain particle. It would have been obvious to one of ordinary skill in the art at the time of invention to have modified the method of Tournier ('321) and Kreuwel ('859) to employ the particle of Rand ('961), as such a substitution would require nothing more than the mere combination of known prior art elements and steps to yield predictable results, which has previously been held as obvious and unpatentable (*KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385).

Response to Amendments and Arguments

9. Applicant's amendments are sufficient to overcome the previous rejections under 35 U.S.C. 112 and the previous double-patenting rejections, which are hereby vacated accordingly.

10. Applicant's amendments are not sufficient to overcome the previous rejection of claim 22 in view of Applicant's admitted prior art. At lines 26-27 of page 4 of the specification, Applicant clearly states that the system of unpublished German patent application 101 51 778.5 was used to perform the inventive method; neither the amendments of 15 April 2010 nor the remainder of the disclosure set forth any elements which set forth the claimed system as being *structurally* distinguishable from that of the prior art German application. Accordingly, the rejection is maintained and reiterated herein.

Art Unit: 3737

11. Applicant's arguments regarding the previous prior art rejections in view of Tournier and Schneider have been fully considered but are moot in view of the new grounds of rejection presented herein.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PARIKHA S. MEHTA whose telephone number is (571)272-3248. The examiner can normally be reached on M-F, 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571.272.4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Parikha S Mehta/
Examiner, Art Unit 3737